I. INTRODUCTION AND PRELIMINARIES

A. INTRODUCTION

Without mitigation, Montana is vulnerable to costly and unnecessary cycles of disaster, response and rebuilding. The Montana Hazard Mitigation Plan is designed to provide information and direction for evaluating the natural hazards that present a threat to Montana and to select the appropriate actions to mitigate the risk from these hazards. This plan outlines procedures for identification of mitigation opportunities that will eliminate or reduce future damage from these hazards. The plan is intended to serve as a guide for those agencies and levels of government, as well as private sector, which have the capabilities and resources to develop mitigation programs within their areas of responsibility. The focus of the plan encompasses mitigation opportunities and actions needed at the federal, state, local, and private levels. The plan outlines activities designed to protect the health, safety, and welfare of the citizens of Montana who reside in the affected areas. The implementation of this plan requires a number of agencies, entities, and people working together to successfully mitigate hazards and subsequent damages.

Risk analysis refers to estimates of total population and property exposed to a hazard, and describes the characteristic of a hazard. Hazard risks can be defined in the following terms:

- Magnitude- How big or strong the event may be,
- Duration- How long the event will last,
- Distribution- Where the event will occur
- Area Affected- How much area is affected
- Frequency- How often the event may occur, and
- Probability- The likelihood of the event occurring.

While the identification of risk indicates where and when events may occur, vulnerability indicates what is likely to be damaged by the identified hazards and how severely. Vulnerability is the degree of exposure to a hazard, how susceptible we are to the hazard and the losses likely to result from a disaster. Assessing vulnerability is important because it frequently establishes mitigation priorities.

B. PURPOSE

In addition to fulfilling the legal obligation under the Stafford Act, this mitigation plan serves the following purposes:

a. Recognize and describe potential hazards and impact upon the state;

b. Identify authorities, capabilities and shortfalls, and assign responsibilities to;

c. Develop: programs, activities, strategies, and recommendations for mitigation;

d. Monitor and implement pre-disaster and post-disaster mitigation measures;

e. List the State's mitigation strategies; and

f. Identify and establish mitigation goals, objectives, and priorities.

C. SCOPE

The scope of this plan is statewide. Actions and recommendations are not restricted to those localities designated as disaster counties. Impact of natural conditions in one part of the state will often have a similar effect upon another. This plan does not replace existing preparedness and operational documents. Instead, it provides mitigation strategies, goals, objectives, and priorities, which can serve to strengthen and improve the effectiveness of state operational procedures.

D. AUTHORITY

FEDERAL

Authority for requiring that a hazard mitigation plan be developed for each state and/or tribe is:

A. Section 409/322 of the Disaster Mitigation Act of 2000 (Public Law 106-390), which amends the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Formerly Public Law 93-288, as amended).

B. 44 Code of Federal Regulations (CFR), part 206 subpart M.

C. FEMA Headquarters Hazard Mitigation Planning Guidance Checklist

D. Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments-DAP-12/September 1990 (Visit Web site

www.fema.gov/mit/pubcmty.htm). This publication can also be order by calling 1-800-480-2520.

E. Presidential Executive Order dated November 6, 2000 regarding: Consultation and coordination with Indian Tribal Governments; effective date for implementation was January 6, 2001.

F. Memorandum from Ernest B. Abbott, FEMA General Counsel, dated November 6, 2000, regarding "Implementation of PL 106-390 Disaster Mitigation Act of 2000 (Stafford Act Amendments).

The Acts require the identification, evaluation, and mitigation of significant hazardous conditions attributed to the most recent disaster. Federal responsibilities and resources for post-disaster hazard mitigation activity includes:

- FEMA Public Assistance and Hazard Mitigation Grant Program (HMGP)
- Individual and Family Grant Program, and
- Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands).

STATE

Montana Code Annotated, Title 10, Chapter 3 defines the state emergency management function as primarily responsible to prevent, minimize, repair injury and damage from natural and man-made causes. The Governor has the leadership role in providing this directive to all state agencies.

Presidential declared disasters include a stipulation that the State must initiate the mitigation process. This condition is required by Section 302 of the Stafford Act (as amended) and is stated in the FEMA-State Agreement. The Governor, through his executive power, directs specific agencies to participate in post-disaster mitigation activities. Local governments play an essential role in implementing effective mitigation, both before and after disaster events. Annually, the county emergency management organization should complete a pre-disaster hazard analysis, which identifies potential problem areas. It also predicts the county's ability to address these hazards through a capability assessment.

LOCAL

In a post-disaster environment, locally affected areas are also expected to participate in mitigation evaluation. Local government participation with federal and state agencies in the Montana Hazard Mitigation Team (MT-SHMT) process is crucial. Recommendations on alleviating or eliminating a repetitive problem often focus on local assessment as to the causes of damage and depend on a local applicant for implementation.

E. MISSION GOALS AND OBJECTIVES

The Mission objectives of this plan is to create a disaster resistant state by reducing the threat of natural hazards to life, property, emergency response capabilities, economic stability, and infrastructure while encouraging the protection and restoration of natural resources and the environment. A sound planning process is essential to the development of an effective mitigation plan. The State Hazard Mitigation Team has defined this plan's goals as:

- ✓ Describe and evaluate Montana's vulnerability of hazards;
- ✓ Motivate the public, private sector, and government agencies to mitigate against the effects of natural hazards through information and education;
- ✓ Coordinate and establish priorities for natural hazard mitigation programs and activities at all levels in the State of Montana; and
- ✓ Document and evaluate Montana's successful progress in achieving Hazard Mitigation.
- ✓ The plan has two objectives:

  I. To guide Montana's mitigation program to reduce or eliminate destructive effects of significant hazards to the state and;

  II. To serve as a public and private sector reference document and management tool for mitigation activities throughout Montana.

A concept whereby individuals, business, and government work in partnership by preparing in advance and taking actions to lessen or eliminate the impact of natural disasters that will occur.

FIGURE 1: Disaster Resistant State.

MITIGATING DISASTER EFFECTS

F. WHY MITIGATE?

Emergency management deals with the cycle of mitigation, preparedness, response and recovery. All too often mitigation is considered as a post-disaster activity. Damages occur, recovery takes place, and then questions arise as to why did it happen and what can be done to correct the problem. The amount of money states spent on all phases of emergency management increased steadily through the 90s culminating at 1.9 billion in fiscal year 1999. Hazard mitigation actions are intended to eliminate or lessen the impact of a recurring event upon life and property. Hazard mitigation can be accomplished in a number of ways. The requirement to develop a post-disaster hazard

mitigation plan provides an opportunity for communities to develop strategies for reduction of potential losses from future natural disasters. Whether applied in post-disaster reconstruction or during pre-disaster planning efforts, hazard mitigation provides planers with guidelines for reducing losses from future disasters.

Natural phenomena such as floods, tornadoes, droughts, winter storms, earthquake, and wild fires are considered a fact based upon our climatic and geo-physical conditions. Hazards associated with these potential disaster-producing events become evident when a risk factor is applied. The risk of an event causing significant damage or destruction increases significantly with expanded development patterns and land use encroachment. Natural hazards such as flooding or tornadoes hold little threat to life or property in a sparsely populated environment. While we cannot control the occurrence of events, we can directly influence the severity of impact by initiating pre-disaster long-term hazard mitigation planning, principles, and practices. This can be accomplished by, taking action to "break" the repetitive cycle of damage, reconstruction, and recurrence of damages to the same locality or facility. However, we recognize it is not always easy to predict the location or amount of impact a disaster will have, but investing now, lives and money will be saved in the years to come.

G. HAZARD MITIGATION GRANT PROGRAM (HMGP)

The Hazard Mitigation Grant Program is available following a presidential disaster declaration. HMGP provides funding for mitigation measures identified through the post-disaster hazard mitigation plan. The amount of funding is based on the federal expenditures during the disaster response and recovery; the federal share of the grants not to exceed 20 percent of the total federal expenditures. FEMA may contribute up to 75 percent of the costs approved for funding. The state or local share is not less than 25 percent of the project. This match may be met with cash or in-kind contributions.

There are three types of HMGP Projects. First is the regular project that covers the majority of the workload of structural and nonstructural projects. It must meet project eligibility, as outlined in CFR 44, 206.434(b). Projects may be of any nature that will result in protection of public or private property from natural hazards.

As a result of the Stafford Act Amendments, October, 2000, section 409/322, 7% of the available HMGP funding under section 404 HMGP can be used for state and local development and upgrading of mitigation plans.

Some mitigation measures are difficult to evaluate against traditional program cost effectiveness criteria. Up to 5 percent of the total HMGP funds may be set aside by the state to pay for measures such as these. To be eligible for the 5 % initiative, measures must:

- Be identified in the State Hazard Mitigation Plan as a measure that would reduce or prevent damage to property or prevent loss of life or injury;

- Be submitted for review with a narrative rationale that identifies the mitigation benefits and indicates that there is a reasonable expectation that future damage or loss of life or injury will be reduced or prevented; and
- Comply with any other applicable HMGP eligibility criteria, and Federal, State, and local laws and ordinances.

One additional usage of HMGP Funding needs to be mentioned briefly. FEMA has addressed a policy EL-19 signed by Michael Armstrong, dated 18 August, 1998; subject, Use of Hazard Mitigation Grant Program for Measures to address Tornado Safety. The policy allows states to use an additional 5 % in conjunction with their 5% set aside money for measures to address tornado hazards. At the time of the writing of this plan, it is the intent of the State of Montana to develop plans, which will satisfy FEMA criteria for the additional 5 %.

As evidence from our previous presidential declarations, the HMGP projects are a viable and effective method by which assistance was obtained to reduce the risk of future damage, hardship, loss, or suffering.

Mitigation activities help to reduce or eliminate damages from future disaster events. Therefore, it must be realized that the HMGP provides long-term solutions, which do not happen over night. HMGP applications are lengthy, require a benefit/cost analysis, and may involve an environmental review prior to the state and FEMA's approval. This, coupled with public concern over the price of such action (financial, economic, political, and social), often place challenges on completing those actions required to get a grant through its final approval.

Mitigation Approaches: Mitigation actions are most often thought of as taking the form of structural or non-structural measures. Implementation of mitigation actions can take either form or a combination thereof. There are primarily four basic approaches to mitigation:

1. **Altering the Hazard** -- Modifying the hazard to eliminate or reduce the frequency of its occurrence. Examples are the triggering avalanches under controlled conditions or clearing build of woody debris (fuels reduction) is a viable means of slowing or preventing the spread of devastating wildland fires.

2. **Averting the Hazard** -- Redirecting the impact away from a vulnerable location by using structural devices or land treatment to shield people and development from harm. Dikes, levees, and dams all represent physical efforts implemented to keep the risk away from the people.

3. **Adapting to the Hazard** -- Modifying structures and altering design standards of construction. Identified problems area such as high wind, earthquake, land sliding or subsidence, and heavily forested terrain all require special building standards and construction practices in order to reduce vulnerability to damage.

4. **Avoiding the Hazard** -- Keep people away from the hazard area or limiting development and population in a risk area. Enforcement actions such as zoning regulations, building codes and ordinances are intended to restrict, limit or deny access to specially identified risk areas.

CRITERIA FOR HAZARD MITIGATION FUNDING

In order to be eligible for HMGP mitigation funding, a Presidential Disaster must have been declared. The applicant doe not necessarily have to be in geographical boundary of the disaster or impacted by the event. The Director of Disaster and Emergency Services (DES) and the State Hazard Mitigation Officer (SHMO) may elect to expand HMGP eligibility to the entire state.

1. Eligible applicants within Montana are:

   a) State and local units of government;

   b) Private non-profit organizations or institutions that own or operate a private non-profit facility as defined in 44 CFR 206.221 (e).

   c) Indian tribes or tribal organizations.

2. Eligible projects must:

   a) May of any nature that will result in protection to public or private property;

   b) Solve a problem independently or a functional part of the solution. Addressees a problem that has been repetitive or is a problem that poses a significant risk to public health and safety if left unsolved.

   c) Be cost effective. Shall not cost more than the anticipated value of the reduction in damages to the area if future disasters were to occur (benefits exceed cost of the proposal).

   d) Applicants must provide a comparison of the cost of the project versus the anticipated value to future damage reduction by documenting that the project.

   e) Conform to the state Hazard Mitigation Plan.

   f) Conform to all federal laws and regulations

   g) Be located in a community participating in good standing in the National Flood Insurance Program (See Montana Hazard Mitigation Administrative Plan). The only exception is if an applicant is located in an area, which is not mapped, and desires to submit an HMGP project. The applicant may

due so if; they agree in writing their intent to enroll into the NFIP within one calendar year.

h) Meet all applicable state and local permit requirements and not contribute to or encourage development in the floodplain or other hazardous areas. Common mitigation criteria stipulate that the selected measures be economically justifiable, technically feasible, socially equitable, and environmentally sound.

STATE PRIORITIES FOR HMGP PROJECTS

Establishing priorities is accomplished by determining the number of people and the value of property vulnerable to risk. Potential disruptions to critical facilities (emergency services or utilities), current political agenda (socioeconomic concerns, environmental quality, economic development) are other situations that may affect prioritization. Priorities will change occasionally and in general are established by the SHMT or the Interagency Hazard Mitigation Survey Team (HMST) workshop following a presidential disaster. The Interagency Hazard Mitigation Team (IMST) is activated following flood related disasters. The HMST is activated following all other types of disasters. The project priorities listed below are Montana's current priorities:

a) Acquisition Relocation and Elevation.

b) Structural Hazard Control or Protection Projects on Existing Structures or Control Systems, such as:
   - Fuels modification and other Fire Mitigation Projects
   - Winter Storm Projects such as Air Flow Spoilers for electrical lines
   - Stream bank stabilization projects
   - Drainage System Upgrades to include re-vegetation
   - Water Retention Basins
   - Dry hydrants
   - Earthquake Mitigation Projects such as shatter resistant window film and equipment tie down and structural hardening

c) Development or improvement of Warning Systems of Local Hazard Mitigation Plans

d) Development of Local Hazard Mitigation Plans.

e) Other Mitigation Activities such as GIS Mapping, public information and equipment to support mitigative needs.

The following table illustrates the many mitigation success stories throughout Montana.

H. TABLE 1 (Mitigation Success Stories)

STATE OF MONTANA Mitigation Success Stories January 1, 1996 to July1, 2001					
DATE	**PROBLEM**	**PROJECT**	**LOCATION**	**FUNDING SOURCE**	**REMARKS**
1998	Urban build up altered natural drainage, existing culvers too small. Flooded annually	Culvert upgrade and channel improvements	Sand Creek, Butte MT	HMGP DR-1105 and city soft match	Immediately eliminated nuisance flooding which had occurred annually
1999	Urban wildland interface fuel build up threatened the town of Libby	Fuels modification	Libby, Montana	Project Impact, City of Libby, various business partners	Over 100 wild fires burned Lincoln Co. in 2000, however none in the area where we performed this project.
1997	Due to extremely wet spring in 1997 the Whitefish and Stillwater Riverbanks were sloughing into the rivers taking homes with them.	Relocation of five homes	Flathead County Montana	HMGP DR-1113 and cash match from homeowners	The rivers continued to erode but no homes were lost
1999	Old dam was breached; old drainage was grown up with trees and brush and flooded the first year the town the first year the dam was breached.	Stream bed clearance, by hand by America Corps youth	Sidney, Montana	HMGP DR-1113 and city in kind match	The work was tested in spring runoff of 2000 and the stream did not leave its banks, the town did not flood.
2000	Extreme wildfire risk and fuels buildup around private homes.	Clearance of defensible space by homeowners	Canyon Ferry Lake Lewis & Clark County, MT	Private homeowner's funds	Lewis & Clark Co. Fire chief lauded the Project Impact Mitigation Program as homeowners had heard our wildfire mitigation Public Service announcements, did the mitigation and the Buck Snort Fire passed their properties while neighbor's homes burned.
2000	There are over 400 volunteer, city, county, state and other entity fire departments in Montana. Jurisdiction historically is a problem with wildland firers.	Develop a mapping system to portray ownership and fire responsibility for all fire departments concerned.	Statewide	HMGP DR-1183 and Montana DNRC in kind match	During the 2000 fires some of the mapping had been done and with over 11,000 firefighters in the field the new mapping proved invaluable and we look forward to finishing the project.
1998-2001	Severe weather fatalities, cold weather injuries, livestock and pet losses, and property damage.	Update and republish Montana's Take Along Winter Survival Handbook plus advertising campaign.	Statewide	HMGP DR-1105 and State in kind match	In the past four years we have handed out over 55,000 copies. They are widely lauded as the best in the nation. They are in all state vehicles, many county and city vehicles as well as the private sector fleets. They are widely used in driver's education, snowmobile clubs and other civic activities as well as private citizens.

The HMGP Grant Review Committee understands that a very good project in a lower priority category could outrank a mediocre project in a higher category. A case in point is the difficulty of sticking strictly to the above priorities is Recommendation #1 by the IHMT following FEMA-DR-1183-MT. The team strongly and unanimously advocated the funding of the Emergency Manager's Weather Information Network (EMWIN) system throughout the state. The team felt that this would be a good mitigation effort in every county in Montana and recommended it as IHMT Recommendation #1. Enhanced communications along with good maintenance, public awareness and exercises are proven to protect lives. However, warning systems are near the bottom of FEMA's priority list.

I. RANKING OF HAZARD MITIGATION PROJECTS

If it is necessary to select from a range of projects due to funding or other constraints, the SHMT Grant Review Committee shall assign a numerical priority for funding to all eligible projects. This priority shall be submitted to FEMA Region VIII along with the letter of transmittal. This ranking shall be in accordance with (IAW) the following criteria, the State administrative Plan, and IAW 44 CFR 206.435 regulations as follows:

a. Measures that best fit within an overall plan for development and or hazard mitigation in the community, disaster area, or state

b. Measures, that if not taken, will have an adverse impact on the area, such as potential loss of life, loss of essential services, damage to essential facilities, or economic hardship on the community

c. Measures that have the greatest potential impact for reducing future disaster losses

d. Measures that are designed to accomplish multiple objectives or multipurpose projects versus single purpose projects, including damage reduction, environmental enhancement and economic recovery

Once it has been determined that the projects meet generally State and Federal requirements, it will be necessary for the SHMT Grant Review Committee to assign a numerical rating and prioritize the projects. This will be especially important if there are more projects than money. Below you will find the actual score sheet used by each member of the SHMT. Each project will be rated on how well it meets the listed objective by assigning a number from 0 to 10 (0 does not meet the objective, 5 medium, 10 high). Once each member has rated the project, the scores will be totaled, and then averaged. There are 100 points possible with a bonus of 10 points if the applicant has a local hazard mitigation plan.

PROJECT TITLE_____

1. Is the project complete to include mandatory attachments?

0-10pts___

2. Does the project address a repetitive problem or one, which poses A significant threat if left unresolved? (See part 4 of application)

0-10pts___

3. Is the project cost effective? It must meet a 1 -1 cost benefit ratio (See part 6 of application)

0-10pts___

4. Did the applicant consider other alternatives and is this the most practical, effective, and environmentally sound of the alternatives (See part 8 of application)

0-10-pts___

5. Does this project save lives and reduce public risks? (See part 4 and 6 of application)

0-10pts___

6. Does the project substantially reduce the risk of damage, hardship Loss and suffering? (See part 6 of application)

0-10pts___

7. Does the project demonstrate affordable operation and maintenance Costs, which the applicant is committed to support? (See part 9 of application)

0-10pts___

8. Are milestones listed and on the project work schedule 404 Form (See part 7 of application)

0-10pts___

9. Does this project restore or protect natural resources, recreational Areas, open space or other environmental values? (See part 4 and 10 of application)

0-10pts___

10 Does the project increase public awareness of hazards?

0-10pts___

SUB TOTAL _____

BONUS: Does the applicant have a Hazard Mitigation Plan?

0-10pts___

TOTAL _____

J. DEFINITION OF TERMS

a) **Disaster Mitigation Officer (DMO)**: The person appointed by the Administrator, Disaster and Emergency Services as the primary state point of contact for matters pertaining to mitigation for the disaster. Serves on the SHMT and IHMT. This person may or may not be the SHMO, if not the SHMO; the DMO will work under the direction of the SHMO.

b) **Emergency Management (EM):** There are four elements to emergency management; preparedness, response, recovery and, mitigation. In addition to reducing hazard impacts through mitigation action, improving preparedness, response and recovery capabilities can also reduce losses of life and property. Many local DES offices are beginning to refer to themselves as County ”EM” offices.

c) **Governor's Authorized Representative (GAR):** the individual selected by the Governor to represent him/her in activities related to the implementation of Public Law 93-288 (as amended) and in ongoing State emergency/disaster preparedness and response actions.

d) **Hazard Mitigation**: any action taken to reduce or permanently eliminate the long-term risk to human life and property from natural and technological hazards.

e) **Hazard Mitigation Grant Program (HMGP):** authorized under section 404 of the Stafford Act. Provides Federal-matching funds (75% Federal - 25% Local) for hazard mitigation projects, which are cost effective, and complement existing post-disaster mitigation programs and activities by providing funding for beneficial mitigation measures that are not funded through other programs.

f) **Hazard Mitigation Grant Program Administrative Plan**: the plan developed by the MT DES to describe procedures for administration of the Hazard Mitigation Grant Program.

g) **Hazard Mitigation Survey Team (HMST):** the FEMA/State/Local survey team that is activated following non-flood related disasters to identify immediate mitigation opportunities and issues to be addressed in the Section 409/322 hazard mitigation plan.

h) **Interagency Hazard Mitigation Team (IHMT):** the FEMA/State/Local mitigation team that is activated following flood related disasters to identify immediate mitigation opportunities and issues to be addressed in the Section 409/322 hazard mitigation plan.

i) **Local Hazard Mitigation Officer (LHMO)**: the representative of local government who serves on either the HMST, IHMT, or a Local Hazard Mitigation Team and who is the primary point of contact with the State and FEMA in planning and implementing post-disaster mitigation activities for their jurisdiction.

j) **Local Hazard Mitigation Team (LHMT):** a team of local citizens organized by a county, township, or municipality to establish hazard mitigation goals, objectives, and priorities for their local government's jurisdiction.

k) **Multi-Hazard Mitigation Plan**: the basic plan resulting from the Montana Hazard Mitigation Team's evaluation of the nature and extent of vulnerability to present hazards. Section 409/322 of the Stafford Act requires the plan when the state receives a Presidential Disaster Declaration.

l) **Multi-Hazard Mitigation Plan Annex:** a hazard specific mitigation annex to the basic multi-hazard mitigation plan. The annex is created by the Montana Hazard Mitigation Team (or the Department of State Lands for wildfire mitigation) and contains recommended actions to minimize future impact and vulnerability to the specific hazard.

m) **Section 404: of the Stafford Act,** authorizes the Hazard Mitigation Grant Program, which provides funding of cost-effective mitigation measures.

n) **Section 409/322: of the Stafford Act,** requires both the identification and evaluation of mitigation opportunities and also a Hazard Mitigation Plan to be implemented as a condition for receiving Federal disaster assistance. Section 409/322 is the impetus for involvement of state and local governments to evaluate and mitigate natural hazards as a condition of receiving Federal disaster assistance.

o) **State Hazard Mitigation Officer (SHMO)**: the person appointed by the governor and designated in the FEMA-State Agreement who serves on the HMST and IHMT, and who is the primary point of contact with FEMA, other Federal agencies, and local units of government for the planning and implementation of post-disaster mitigation activities.

p) **State Hazard Mitigation Team (SHMT):** composed of key state agency representatives, local units of government, and other public or private sector bodies or agencies, the purpose of the SHMT is to evaluate hazards, identify strategies, coordinate resources, and implement measures that will reduce the vulnerability of people and property to damage from hazards and disasters.

Stafford Act: Public Law 93-288 (as amended), officially titled *"Robert T. Stafford Disaster Relief and Emergency Assistance Act,"* and commonly referred to as the Stafford Act.